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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,436	09/28/2001	Srinivas Gutta	US010471 (702052)	6366

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EXAMINER

KIM, CHONG R

ART UNIT PAPER NUMBER

2623

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/966,436	Applicant(s) GUTTA ET AL.	
	Examiner Charles Kim	Art Unit 2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/28/03, 9/28/01</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-3, 7-12 are rejected under 35 U.S.C. 102(b) as being anticipated by the article entitled “Face Recognition of Video Sequences in MPEG-7 Context Using a Global Eigen Approach” by Lorente et al. (“Lorente”).

Referring to claim 1, Lorente discloses a method for classifying facial image data, the method comprising the steps of:

- a. training a classifier device for recognizing facial images and obtaining learned models of the facial images used for training (pages 187-188, section 2 and top of figure 2)
- b. inputting a vector of a facial image to be recognized into the classifier, the vector comprising data content associated with one-half of a full facial image (pages 189-190, section 4 and table 1. Note that the eigenside of the test face is interpreted as the input vector, see also page 188, right column and top of figure 1)
- c. classifying the one-half face image according to a classification method (pages 189-190, section 4, figure 2, and table 1).

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Referring to claim 2, Lorente further discloses that the classifier device is trained with data corresponding to full facial images (pages 187-188, section 2 and top of figure 2), the classifying including matching the input vector of one-half image data against corresponding data associated with one-half of each resulting learned model [pages 189-190, section 4 and table 1. Lorente explains that the input vector of one-half image data (eigenside of the test face) is matched with the eigenside of the training face. Note that the eigenside of the training face is interpreted as one-half of the resulting learned model (eigenface)].

Referring to claim 3, Lorente further discloses that the classifier device is trained with data corresponding to one-half facial images (top of figure 2), the classifying including matching the input vector of one-half image data (eigenside of test face) against corresponding data associated with each resulting learned model (eigenside of training face) [pages 189-190, section 4 and table 1].

Referring to claims 7 and 10, see the rejection of at least claim 1 above.

Referring to claims 8 and 11, see the rejection of at least claim 2 above.

Referring to claims 9 and 12, see the rejection of at least claim 3 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of the article entitled "Face Recognition of Video Sequences in MPEG-7 Context Using a Global Eigen Approach" by Lorente et al. ("Lorente") and the article entitled "Mixture of Experts for Classification of Gender Ethnic Origin and Pose of Human Faces" by Gutta et al. ("Gutta").

Referring to claim 4, Lorente does not explicitly disclose that the classifying step comprises a Radial Based Function Network trained for classifying inputs based on the facial image. However, this feature was exceedingly well known in the art. For example, Gutta discloses a classifying step comprising a Radial Based Function Network trained for classifying inputs based on facial images (pages 948-951, sections I-IV).

Lorente and Gutta are combinable because they are both concerned with classifying facial image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the classifying step of Lorente so that it comprises a Radial Basis Function Network trained for classifying inputs based on the facial image, as taught by Gutta. The suggestion/motivation for doing so would have been to increase the accuracy of the face recognition process (Gutta, pages 957-958, section VIII). Therefore, it would have been obvious to combine Lorente with Gutta to obtain the invention as specified in claim 4.

Referring to claim 5, Gutta further discloses:

a. initializing the Radial Basis Function Network, the initializing step comprising the steps of: fixing the network structure by selecting a number of basis functions F , where each basis function I has the output of a Gaussian non-linearity; determining the basis function means u_1 , where $I=1, \dots, F$, using a K-means clustering

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algorithm; determining the basis function variances σ_i^2 ; and determining a global proportionality factor H , for the basis function variances by empirical search (pages 950-952, section IV);

b. presenting the training, the presenting step comprising the steps of: inputting training patterns $X(p)$ and their class labels $C(p)$ to the classification method, where the pattern index is $p = 1, \dots, N$; computing the output of the basis function nodes $y_i(p)$, F , resulting from pattern $X(p)$; computing the $F \times F$ correlation matrix R of the basis function outputs; and computing the $F \times M$ output matrix B , where d_j is the desired output and M is the number of output classes and $J=1 \dots, M$; and determining weights, the determining step comprising the steps of: inverting the $F \times F$ correlation matrix R to get R^{-1} ; and solving for the weights in the network (pages 950-952, section IV).

Referring to claim 6, see the rejection of at least claim 4 above. Gutta further discloses the steps of classifying a face image by computing the basis function outputs, for all F basis functions, computing output node activations, and selecting the output z_j with the largest value and classifying the face as class j (pages 950-952, section IV). Note that the combination of Lorente and Gutta discloses the step of presenting the half face input vector data to the classification method described above (claim 4).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 703-306-4038. The examiner can normally be reached on Mon thru Thurs 8:30am to 6pm and alternating Fri 9:30am to 6pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



ck

August 6, 2004


Jon Chang
Primary Examiner